Catalogue no. 75-006-X
ISSN 2291-0840

Insights on Canadian Society

Food insecurity among Inuit living in Inuit Nunangat

by Paula Arriagada

Release date: February 1, 2017

Statistics Canada Statistique Canada

Canada

How to obtain more information

For information about this product or the wide range of services and data available from Statistics Canada, visit our website, www.statcan.gc.ca.

You can also contact us by

email at STATCAN.infostats-infostats.STATCAN@canada.ca

telephone, from Monday to Friday, 8:30 a.m. to 4:30 p.m., at the following numbers:

- Statistical Information Service 1-800-263-1136
- National telecommunications device for the hearing impaired 1-800-363-7629
- Fax line 1-514-283-9350

Depository Services Program

- Inquiries line 1-800-635-7943
- Fax line 1-800-565-7757

Standards of service to the public

Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner. To this end, Statistics Canada has developed standards of service that its employees observe. To obtain a copy of these service standards, please contact Statistics Canada toll-free at 1-800-263-1136. The service standards are also published on www.statcan.gc.ca under "Contact us" > "Standards of service to the public."

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.

Standard table symbols

The following symbols are used in Statistics Canada publications:

. not available for any reference period
.. not available for a specific reference period
... not applicable
0 true zero or a value rounded to zero
0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p} preliminary
^{r} revised
x suppressed to meet the confidentiality requirements of the *Statistics Act*
^{E} use with caution
F too unreliable to be published
* significantly different from reference category ($p < 0.05$)

Published by authority of the Minister responsible for Statistics Canada

© Minister of Industry, 2017

All rights reserved. Use of this publication is governed by the Statistics Canada Open Licence Agreement.

An HTML version **is also available.**

Cette publication est aussi disponible en français.

Food insecurity among Inuit living in Inuit Nunangat

by Paula Arriagada

Overview of the study

Using data from the 2012 Aboriginal Peoples Survey (APS), this study examines the prevalence of food insecurity among Inuit aged 25 and over living in Inuit Nunangat, and the factors associated with food insecurity among Inuit adults. Food insecurity can refer to situations when the amount of food purchased does not last and there is not enough money to buy more food, balanced meals are unaffordable, or household members cut the size of their meals or skip meals because there is not enough money for sufficient food. This study also discusses some of the health outcomes of Inuit adults who live in a food insecure household.

- In 2012, more than one-half (52%) of Inuit in Inuit Nunangat aged 25 and over lived a in household that experienced food insecurity in the previous 12 months (i.e., they answered positively to at least two of the six food insecurity questions in the APS). This compared with 14% of Inuit living outside Inuit Nunangat.
- One aspect of food insecurity is a lack of money to buy food. In 2012, nearly one-third (32%) of Inuit adults in Inuit Nunangat ate less than they should have eaten because they could not afford to buy food. Furthermore, 27% of Inuit adults reported that they had been hungry because they could not afford enough food.
- In Nunavut and in Nunavik, at least 55% of Inuit adults (aged 25 and over) lived in a household that experienced food insecurity. This compared with 42% in Nunatsiavut and 33% in the Inuvialuit Region.
- Some Inuit adults had a higher probability of experiencing food insecurity, including women, those who had children, the unemployed, those who lived in a crowded dwelling, and those who had weaker extended family ties.
- Among Inuit adults aged 25 and over who lived in a food insecure household, 70% reported that they were in "good", "fair" or "poor" health (as opposed to "excellent" or "very good".) This compared with 57% among those who did not experience food insecurity in the last 12 months.

Introduction

Food security refers to "when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."[1] Conversely, food insecurity occurs when one or more household members do not have access to an acceptable amount of quality healthy food, usually because of financial constraints.[2]

In 2012 about 4 million individuals in Canada, including 1.15 million children under the age of 18, had experienced some level of food insecurity during the previous 12 months. This represents about 13% of Canadian households.[3]

Food insecurity is an important social and public health issue in Canada as it has been shown to contribute to poor health including restricted mobility and chronic conditions, as well as poor mental health and mental distress.[4] In addition, it is linked to lower educational outcomes and family stress.[5]

Research has also shown that food insecurity is higher among the Aboriginal population than their non-Aboriginal counterparts. For example, according to data from the 2012 Aboriginal Peoples Survey (APS), 1 in 5 (20%) Aboriginal people aged 15 and over (First Nations living off reserve, Métis and Inuit) lived in a household

that experienced food insecurity in the previous 12 months[6] compared with 8% of the non-Aboriginal population (according to the 2012 *Canadian Community Health Survey*).[7]

The prevalence of food insecurity differs considerably depending on where people live. Existing research has shown that food insecurity is most prevalent in Canada's North. For example, in 2014 the prevalence of food insecurity in Nunavut and the Northwest Territories rose to the highest levels observed since monitoring began in 2005.[8] Results from the 2007/2008 International Polar Year Inuit Health Survey show that Inuit in Nunavut had the highest documented food insecurity rate for any Indigenous population in a developed country.[9]

This paper focuses on food insecurity among Inuit living in Inuit Nunangat, the Inuit homeland in Canada.[10] Inuit Nunangat includes the communities located in the four Inuit regions: Nunatsiavut (Northern coastal Labrador), Nunavik (Northern Quebec), the territory of Nunavut, and the Inuvialuit Region of the Northwest Territories.[11] The food security challenges faced by Inuit are more extreme, especially for those living in remote and isolated communities.[12]

A particular challenge in these regions is the price of market food, which is driven by a number of factors including transportation, costs of maintaining stores in remote communities, spoilage of food, and inventory costs.[13] According to the Revised Northern Food Basket, it costs from $328 to $488 per week to provide a healthy diet to a family of four in an isolated Inuit community, whereas the same basket of goods would cost approximately $209 in a southern city centre such as Ottawa.[14] Similarly, the Nunavik Comparative Price Index has found that identical food baskets cost 81% more in Nunavik than in Québec.[15]

As a result of these high numbers, many strategies and programs have been put in place to alleviate the high cost of nutritious food in the North. The Government of Canada has, for example, subsidized food in northern communities since the 1960s. Nutrition North Canada, which replaced the Food Mail Program in 2011, subsidizes the cost of perishable nutritious food that must be shipped by air to eligible communities and also provides funding for retail and community-based nutrition education initiatives.[16]

There are also many strategies at the regional level that aim to address the larger issue of food insecurity including the Nunavut Food Security Strategy launched by the Nunavut Food Security Coalition in 2014, and the Anti-Poverty Strategic Framework in the Northwest Territories.[17] These programs focus on areas such as availability of country food[18] and store-bought food, local food production, life skills, healthy eating habits and sustainable communities.

Existing research has shown that a number of factors, aside from market food prices, are associated with food insecurity, including lower household income, crowding and the presence of children in the home. Using data from the 2012 Aboriginal Peoples Survey (APS), the first part of this paper examines the prevalence of food insecurity among Inuit aged 25 and over living in Inuit Nunangat. This age restriction is applied because of the need to focus on certain socioeconomic factors such as educational attainment and labour force participation.

The second part of this paper adds to the existing research by examining, in a multivariate model, the factors associated with food insecurity among Inuit adults. In addition, some health outcomes of Inuit adults living in food insecure households are also examined. The outcomes include self-rated health, chronic conditions and mental health. Food insecurity is a complex and multidimensional phenomenon, and understanding the determinants of food insecurity can provide information for policymakers to develop long-term strategies or solutions to address this issue.

Defining food insecurity

In the Aboriginal Peoples Survey, food insecurity refers to situations when the food purchased does not last (i.e., running out of food) and there is not enough money to buy more food, balanced meals are unaffordable, or household members cut the size of their meals or skip meals because there is not enough money for sufficient food. The questions used in the module as well as the responses are shown in Table 1.

In 2012, for example, 16% of Inuit aged 25 and over in Inuit Nunangat lived in a household where it was often true that food did not last and there was no money to buy more food during the past 12 months. An additional 43% reported this to be sometimes true.

In addition, about 3 in 10 (31%) Inuit lived in a household where they or other household members cut the size of their meals or skipped meals because there was not enough money for food. Among those who skipped meals or cut meal size, 41% reported doing so almost every month while an additional 42% reported skipping some months but not every month.

Furthermore, almost one-third (32%) of Inuit reported eating less than they should because there was not enough money to buy food, while just over one-quarter (27%) reported that, in the previous 12 months, they had been hungry because they could not afford enough food.

The level of food security in a household is derived from the answers provided by survey respondents. Those who provided affirmative answers to at least two of the above questions are considered to be living in a household that is "food insecure" (see *Data sources, methods and definitions*).

Prevalence of food insecurity in Inuit Nunangat

According to the 2012 Aboriginal Peoples Survey, more than one-half (52%) of Inuit in Inuit Nunangat aged 25 and over lived in a household that had experienced food insecurity in the previous 12 months compared with 14%[E] of Inuit living outside Inuit Nunangat (Chart 1).

The prevalence of food insecurity also varied by Inuit region. For example, 56% of Inuit aged 25 and over in Nunavut lived in a household that had experienced food insecurity compared with 55% in Nunavik, 42% in Nunatsiavut, and 33% in the Inuvialuit Region.

Factors associated with food insecurity

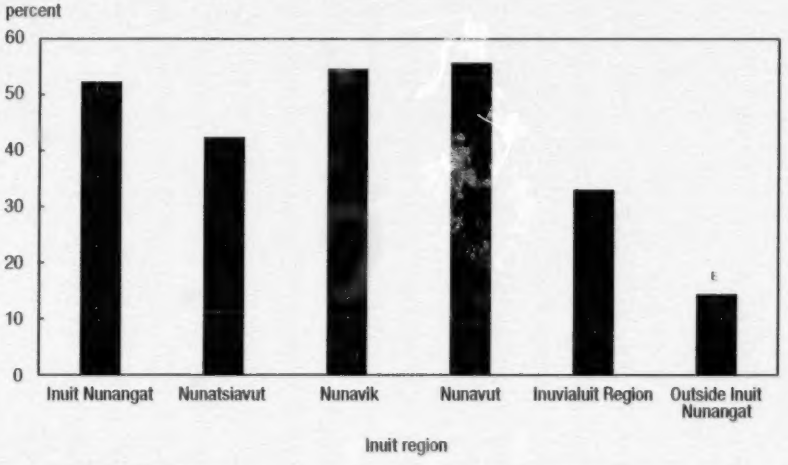
Which characteristics are most associated with food insecurity? A logistic regression was estimated to simultaneously assess the relationship between a number of sociodemographic factors and food insecurity, including demographic characteristics; living arrangements

Table 1
Responses to household food security module questions for Inuit aged 25 and over living in Inuit Nunangat, 2012

	percent
Q1. Food didn't last / no money to buy more	
Often true	15.9
Sometimes true	42.6
Never true	41.5
Q2. Balanced meals unaffordable	
Often true	13.1
Sometimes true	37.2
Never true	49.7
Q3. Meals skipped / cut meal size because there wasn't enough money to buy food	
Yes	30.5
No	69.5
Q3a. Frequency of meals skipped / cut meal size[1]	
Almost every month	40.5
Some months but not every month	42.1
Only 1 or 2 months	17.4
Q4. Ate less than you felt you should because there wasn't enough money to buy food	
Yes	32.2
No	67.7
Q5. Hungry but could not afford food	
Yes	26.8
No	73.2

1. Asked only of those who responded "yes" to the meals skipped / cut meal size question.
Notes: Questions refer to past 12 months. Totals may not add up to 100 due to rounding.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Chart 1
Proportion of Inuit adults aged 25 and over who experienced food insecurity in the previous 12 months, by Inuit region, 2012



[E] use with caution
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

and household crowding; education and labour force status; income; family ties; and geography (see Table A1 in the supplementary information section for a complete list of bivariate relationships between all explanatory variables and food insecurity). Results from this model are presented as predicted probabilities. A probability of 1 should be interpreted as a 100% chance of experiencing food insecurity, while a probability of 0 indicates a 0% chance.

Demographic characteristics and living situations

Research has shown that food insecurity tends to be higher among women than men.[19] Similarly, the results of the multivariate model show differences in food insecurity between men and women (Table 2).[20] More specifically, Inuit women aged 25 and over living in Inuit Nunangat had a significantly higher probability of living in a food insecure household—56% versus 47% for Inuit men—even after controlling for factors such as living arrangements, educational and labour force status, income, family ties and geography.

With regard to age, research has found that older individuals are less likely to live in a food insecure household.[21] Similarly, among Inuit adults, the probabilities of experiencing food insecurity were higher for those aged 25 to 34 and those aged 35 to 54 compared with the reference category of 55 and over.

Previous research has shown a significant relationship between food insecurity and household type.[22] In particular, the presence of children as well as lone-parent situations have been found to be associated with food insecurity.

Table 2
Predicted probability of having experienced food insecurity in the previous 12 months among Inuit aged 25 and over living in Inuit Nunangat, various socioeconomic characteristics, 2012

	predicted probabilities
Sex	
Men (ref.)	0.472
Women	0.555*
Age group	
25 to 34	0.511*
35 to 54	0.549*
55 and over (ref.)	0.401
Living arrangements	
Couples without children (ref.)	0.349
Couples with children	0.517*
Lone parents	0.560*
With relatives	0.585*
Alone	0.484
Household crowding	
One person or less per room (ref.)	0.483
More than one person per room	0.560*
Education	
Did not complete high school	0.547*
Completed high school (ref.)	0.449
Labour force status	
Employed (ref.)	0.425
Unemployed	0.770*
Not in the labour force	0.577*
Total household income	
Below median income	0.606*
Above or equal to median income (ref.)	0.424
Strength of extended family ties	
Moderate to very weak family ties	0.656*
Strong or very strong family ties (ref.)	0.458
Geography	
Rural areas	0.545*
Small population centres (ref.)	0.447

* significantly different from the reference category (ref.) ($p<0.05$)
Note: Predicted probabilities are calculated using a logistic regression model and are based on marginal effects at the mean.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

The multivariate results confirm this relationship. Among Inuit adults living in Inuit Nunangat, lone parents (56%) and couples with children (52%) had a significantly greater predicted probability of living in a food insecure household than couples without children (35%). The probability of living in a food insecure household was also significantly greater for individuals who lived with relatives (59%).[23] Living alone, however, was not associated with a higher probability of experiencing food insecurity once all other factors were considered.

Another housing-related factor associated with food insecurity is living in a crowded dwelling.[24] According to data from the 2011 National Household Survey (NHS), 39% of Inuit living in Inuit Nunangat lived in a crowded dwelling compared with 4% of the non-Aboriginal population in Canada.[25] Among Inuit aged 25 and over living in Inuit Nunangat, the probability of living in a food insecure household was significantly higher for those living with more than one person per room compared with those not

in a crowded dwelling (56% versus 48%). Because living in a crowded home is associated with many health problems and is directly connected to other social determinants of Inuit health[26], there is no doubt that food insecurity is adding another element of stress to these specific populations.

Education, labour force status, and household income

Educational attainment is another factor that could potentially have an impact on the likelihood of experiencing food insecurity. Since obtaining a high school diploma is often considered the minimal educational requirement to access the labour market,[27] workers who do not have a high school diploma have greater difficulty obtaining well-paying jobs; they are also more vulnerable to economic downturns. Education is thus closely related to household food insecurity as it affects employment and income opportunities.

Although the educational attainment of Inuit continues to increase, many Inuit still do not complete high school. According to the 2011 NHS, 41% of Inuit aged 25 to 64 had completed a high school diploma compared with 85% of the non-Aboriginal population. Among Inuit adults living in Inuit Nunangat, about 3 in 10 (29%) were high school graduates.

The results of this analysis show that completing high school is significantly associated with a lower probability of living in a food insecure household. Among Inuit aged 25 and over in Inuit Nunangat, the probability of experiencing food insecurity was 45% for those who had completed high school compared with 55% for those who had not completed high school, even after controlling for other factors.

Research has shown that labour market status can be associated with poorer social and health outcomes.[28] As a result, one can expect that being employed may lower the probability of experiencing food insecurity. The multivariate results support this notion. Inuit adults 25 and older who were employed were less likely to live in a food insecure household compared with those who were unemployed (43% versus 77%). At the same time, the probability of experiencing food insecurity among those not in the labour force, compared to individuals who were employed, was also significantly greater at 58%.

Existing research has also shown that lower household income is associated with a greater likelihood of food insecurity.[29] This is due to the fact that food insecurity results from the inability to obtain food because of financial hardship. For many Aboriginal people living in the North, the effects of the high cost of food and the high cost of living in general are intensified by lower income. According to the 2011 NHS, Inuit aged 25 and over living in Inuit Nunangat had a median household income (after tax and adjusted for household size) of $31,400, whereas the median household income of non-Aboriginal people in Canada was $40,200.

The multivariate results in this study confirm this relationship. After controlling for other factors, Inuit aged 25 and over who had a household income below the median had a 61% probability of living in a food insecure household compared with 42% for those who had a household income at or above the median.[30]

Family ties and geography

Family and community are central to Inuit identity and culture,[31] and may be another important factor in terms of their association with food insecurity. Having a stronger social support system may lower the probability of experiencing food insecurity. In the APS, family ties are defined as the reported strength of family ties among family members living in a different household but in the same community.

The results of this study show the importance of extended family ties as a potential source of support. Among Inuit adults aged 25 and over living in Inuit Nunangat, those with strong or very strong extended family ties have a significantly lower probability of living in a food insecure household compared to those with weaker family ties[32] (46% versus 66%).

The remote location of many communities in Inuit Nunangat and the costs associated with the transportation of perishable and nutritious food are important considerations when examining food insecurity. Many Inuit communities have only one grocery store, which makes it difficult to access food. Moreover, access to employment opportunities may be more limited in smaller communities.[33]

The geography variable refers to the population centre size from the 2011 NHS, which compares rural areas (less than 1,000 people) versus small population centres (1,000 to 29,999).[34] Results show that Inuit adults living in a rural area have a significantly higher probability of living in a food insecure household compared to those in small population centres (55% versus 45%) after controlling for other factors.

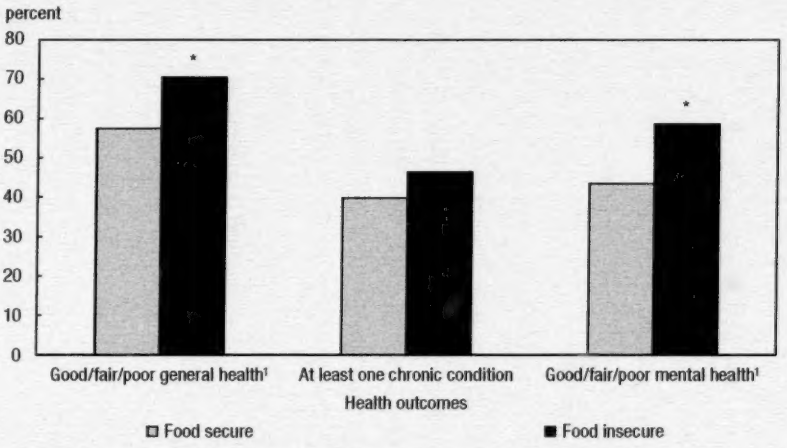
Food insecurity and selected health outcomes

This section focuses on some of the possible relationships between experiencing food insecurity and particular health outcomes. This is important as Inuit Tapiriit Kanatami (the national organization dedicated to the protection and advancement of the rights and interests of Inuit in Canada) has identified food insecurity as one of the important social determinants of Inuit health.[35] Furthermore, existing research has shown that poor health can be a barrier to food security, as well as an outcome of being food insecure. Food insecurity is related to inadequate nutrition, which can have serious physical and mental health implications.[36] In addition, research on food insecurity in the Aboriginal population found that those individuals who lived in a food insecure household were more likely to have poor perceived health and high stress.[37]

For the purpose of this paper, the relationship between food insecurity and health is examined by focusing on the following health outcomes: 1) self-rated general health (those who reported their overall health as "good", "fair" or "poor" as opposed to "very good" or "excellent");[38] 2) being diagnosed with at least one chronic condition; and 3) self-rated mental health (proportion who said that their mental health was "good", "fair" or "poor", as opposed to "very good" or "excellent").

According to the 2012 Aboriginal Peoples Survey, several health problems were more prevalent among Inuit adults in Inuit Nunangat who lived in a food insecure household (Chart 2). For example, the bivariate results show that among Inuit aged 25 and over, those in a food insecure household were significantly more likely to report their health in less positive terms ("good", "fair" or "poor" instead of "excellent" or "very good") than those who did not experience food insecurity (70% versus 57%). This difference in health status remained significant even when the effects of age, sex, education, labour, household income and crowding were taken into account (Table 3).

Chart 2
Prevalence of selected health outcomes by food security status, Inuit aged 25 and over living in Inuit Nunangat, 2012



* significantly different from the reference category (Food secure) ($p<0.05$)
1. As opposed to "very good" or "excellent".
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

The same finding is true for self-reported mental health. Among Inuit adults aged 25 and over in Inuit Nunangat, 59% of those who were in a food insecure household reported lower levels of mental health ("good", "fair" or "poor" instead of "excellent" or "very good"). Among Inuit adults in a food secure household, the proportion that reported their mental health in such terms was lower, at 44%. When

Table 3
Predicted probabilities for selected health outcomes by food security status, Inuit aged 25 and over living in Inuit Nunangat, 2012

	Good/fair/poor general health[1]	At least one chronic condition	Good/fair/poor mental health[1]
		predicted probabilities	
Food secure (ref.)	0.573	0.361	0.443
Food insecure	0.685*	0.451*	0.578*

* significantly different from the reference category (ref.) ($p < 0.05$)
1. As opposed to "very good" or "excellent".
Notes: Predicted probabilities are calculated using a logistic regression model and are based on marginal effects at the mean. Model controls for sex, age, crowding, education, labour force status and household income.
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

other factors were considered, Inuit adults who lived in a food insecure household still had a significantly higher probability of describing their mental health as good, fair or poor.

Finally, the bivariate results indicate that there was no significant difference in the prevalence of at least one chronic condition between people living in food secure and food insecure households. However, this difference becomes significant in the multivariate model that controls for age, sex, education, labour force status and household income, as well as crowding. As seen in Table 3, Inuit adults in a food insecure household had a 45% probability of being diagnosed with at least one chronic condition compared with 36% for those in a food secure household.

Conclusion

Food insecurity is more prevalent among the Aboriginal population than their non-Aboriginal counterparts, especially for those in remote and Northern communities. Furthermore, food insecurity is an important public health issue that has been shown to contribute to a number of outcomes including physical and mental health.

This paper provides a more detailed examination of food insecurity among Inuit living in Inuit Nunangat—a group that has been shown to have higher rates of food insecurity. In 2012, more than one-half (52%) of Inuit adults aged 25 and over living in Inuit Nunangat lived in a household that experienced food insecurity in the previous 12 months.

Several characteristics are associated with food insecurity. Inuit women were more likely to live in a food insecure household even after controlling for other factors. Another important factor associated with a higher probability of experiencing food insecurity is living arrangements, especially the presence of children in the home, being a lone parent, and living with relatives. In addition, Inuit living in a crowded home had a greater probability of living in a food insecure household.

The findings also highlight the importance of education, employment and household income. For example, Inuit adults aged 25 and over who completed high school had a lower probability of living in a food insecure household while the same was true for employed Inuit. In addition, Inuit adults whose household income was below the median were 18 percentage points more likely to live in a food insecure household than those whose household income was equal or above to the median.

Furthermore, the results also show that a stronger social support system is significantly associated with a lower probability of experiencing food insecurity. Among Inuit adults aged 25 and over living in Inuit Nunangat, those with strong or very strong extended family ties were significantly less likely to live in a food insecure household than those with weaker family ties.

This paper also examined the relationship between food insecurity and selected health outcomes. Inuit adults in Inuit Nunangat who lived in a food insecure household were significantly more likely to describe their health, including mental health, as "good", "fair" or "poor" (as opposed to "excellent" or "very good"). In addition, the prevalence of being diagnosed with a chronic condition is significantly associated with food insecurity. Inuit adults living in a food insecure household were more likely to report being diagnosed with at least one chronic condition than those in a food secure home.

The results of this study do not provide definitive answers about the determinants of food insecurity as no causality can be implied. Furthermore, it is also important to note that the food security module used in the Aboriginal Peoples Survey does not include questions related to access to traditional Inuit country food or initiatives such as community freezers, which would likely be important in determining overall food security for Inuit living in Inuit Nunangat. Nonetheless, this study's results reveal the important characteristics associated with food insecurity among Inuit living in Inuit Nunangat, as well as the relationship between food insecurity and health.

Paula Arriagada *is a research analyst with the Social and Aboriginal Statistics Division at Statistics Canada.*

Data sources, methods and definitions

Data sources

The 2012 Aboriginal Peoples Survey (APS) is a national survey of First Nations people living off reserve, Métis, and Inuit aged 6 and over. The 2012 APS was the fourth cycle of the survey and focused on the topics of education, employment and health. It also collected information on language, income, housing and mobility.

The survey was carried out by Statistics Canada with funding provided by three federal departments: Indigenous and Northern Affairs Canada, Health Canada, and Employment and Social Development Canada. For information on survey design, target population, survey concepts, and response rates, consult the *Aboriginal Peoples Survey, 2012: Concepts and Methods Guide*.

APS data are well-suited for the purposes of this study as the large Inuit sample allows for an in-depth analysis. In this case, the analysis is based on a sample of 2,002 Inuit aged 25 and over living in Inuit Nunangat. Other existing surveys that ask questions about food insecurity often have a smaller sample of Aboriginal people—information therefore often cannot be disaggregated for each of the three Aboriginal identity groups: First Nations people, Métis, and Inuit.

Definitions

The household food security questions in the Aboriginal Peoples Survey (APS) originate from the U.S. Household Food Security Survey Module Six-Item Short Form. The following questions are used:

Q1. The food that [you/you and other household members] bought just didn't last, and there wasn't any money to get more. Was that often true, sometimes, true, or never true in the past 12 months?

Q2. [You/you and other household members] couldn't afford to eat balanced meals. In the past 12 months was that often true, sometimes true, or never true?

Q3. In the past 12 months, did [you/you and other household members] ever cut the size of your meals or skip meals because there wasn't enough money to buy food?

Q3a. How often did this happen – almost every month, some months but not every month, or in only 1 or 2 months?

Q4. In the past 12 months, did you [personally] ever eat less than you felt you should because there wasn't enough money to buy food?

Q5. In the past 12 months, were you [personally] ever hungry but didn't eat because you couldn't afford enough food?

It is important to note that although questions 4 and 5 include the text "did you [personally]," the answer to this question may have been provided by a member of the household other than the respondent.

The level of food security in the household is derived from the questions above. Responses of "often" or "sometimes" to questions 1 and 2, and "yes" to questions 3, 4 and 5 are coded as affirmative (yes). Responses of "almost every month" and "some months but not every month" to question 3a are coded as affirmative (yes). The sum of affirmative responses to the six questions in the module determines the category to which a respondent is classified in terms of food insecurity (see below).

Food security categories

Scores 0-1: High or marginal food security

Scores 2-4: Low food security

Scores 5-6: Very low food security

For the purposes of this paper, the food security status of households with scores of 0 or 1 is described as **food secure** and the two categories of "low food security" and "very low food security" are combined and referred to as **food insecure**.

Hunger among Inuit children

The food insecurity module used in the 2012 Aboriginal Peoples Survey (APS) does not ask directly about children's food insecurity.[39] However, some data on children's hunger status are available from the 2006 Aboriginal Peoples Survey and the 2006 Aboriginal Children's Survey (ACS).

According to data from the 2006 APS, close to one-third (30%) of Inuit children aged 6 to 14 in Canada had at some point experienced being hungry because the family had run out of food or money to buy food.[40] In Nunavut, nearly 4 in 10 (39%) Inuit children had experienced hunger; the figures were 33% for Inuit children in Nunavik, 30% in Nunatsiavut, and 12% in the Inuvialuit Region.

Furthermore, among Inuit children aged 6 to 14 who had experienced hunger, nearly one-quarter (24%) reported that this happened regularly at the end of the month, while an additional 21% had experienced hunger more than once a month.

Similarly, data from the 2006 ACS showed that hunger was also a significant problem among younger Inuit children. Specifically, about 1 in 4 (24%) Inuit children aged 2 to 5 in Canada were reported to have experienced hunger by their parents. In Inuit Nunangat, the prevalence of hunger rose to 32%.[41]

Supplementary information

Table A1
Proportion of Inuit aged 25 and over living in Inuit Nunangat who experienced food insecurity in the previous 12 months, various socioeconomic characteristics, 2012

	percent
Sex	
Men (ref.)	50.7
Women	53.5
Age group	
25 to 34	54.2
35 to 54	53.5
55 and over (ref.)	45.4
Living arrangements	
Couples without children (ref.)	34.8
Couples with children	50.7*
Lone parents	61.3*
With relatives	61.1*
Alone	49.1
Household crowding	
One person or more per room (ref.)	48.1
More than one person per room	58.0*
Education	
Did not complete high school	56.6*
Completed high school (ref.)	40.5
Labour force status	
Employed (ref.)	41.5
Unemployed	75.5*
Not in the labour force	61.2*
Total household income	
Below median income	64.4*
Above or equal to median income (ref.)	39.6
Strength of extended family ties	
Moderate to very weak family ties	68.0*
Strong or very strong family ties (ref.)	46.0
Geography	
Rural areas	56.2*
Small population centres (ref.)	42.6

* significantly different from the reference category (ref.) ($p<0.05$)
Source: Statistics Canada, Aboriginal Peoples Survey, 2012.

Notes

1. See United Nations Food and Agricultural Organization (1996).
2. See Tarasuk et al. (2014); and Roshanafshar and Hawkins (2015).
3. See Tarasuk et al. (2014). Please note that the prevalence of food insecurity varies depending on how it is defined. Statistics Canada's definition of food insecurity includes individuals who live in moderately and severely food insecure households. Other reports such as those by Tarasuk et al. (2014, 2016) include marginally food insecure households in their calculations.
4. See Rotenberg (2016); Anderson (2015); Willows et al. (2011); Tarasuk (2009); and Lambden et al. (2006).
5. See Council of Canadian Academies (2014); and Butler Walker et al. (2009).
6. The target population of the 2012 Aboriginal Peoples Survey excluded people living on Indian reserves and in Indian settlements in the provinces and in certain First Nations communities in the territories. Since the on-reserve First Nations population is excluded, it is possible that the true prevalence of food insecurity for all Aboriginal people is underestimated to some extent. According to data from the 2008 to 2010 Regional Health Survey (RHS), more than one-half (54%) of households in First Nations communities were categorized as being "moderately" to "severely" food insecure. See FNIGC (2012) for more information.
7. The Canadian Community Health Survey (CCHS) covers the population aged 12 and over residing in all provinces and territories. Persons living on reserves, full-time members of the Canadian Forces, the institutionalized population, and those living in the Quebec health regions of Région du Nunavik and Région des Terres-Cries-de-la-Baie-James are excluded. In this paper, the CCHS food insecurity prevalence represents the percentage of moderate and severe food insecurity, with household weights applied. Note that the food insecurity rates from the Aboriginal Peoples Survey use individuals weights only. The CCHS used the 18-item United States Department of Agriculture (USDA) Food Security Survey Module, which includes 10 questions on the status of adults and 8 questions on children in the household.

8. See Tarasuk et al. (2016).
9. See Egeland (2011); and Rosol et al. (2011). The IPY Inuit Health Survey also used the 18-item United States Department of Agriculture (USDA) Food Security Survey Module.
10. It was possible to report both single and multiple responses to the Aboriginal identity question on the APS. The data presented here represent a combination of the single and multiple responses for Inuit.
11. Inuit of the Western Arctic are known as "Inuvialuit." In this paper, the term "Inuit" includes Inuvialuit.
12. Most of the communities in Inuit Nunangat are remote and about one-third have populations of less than 500 people. See Inuit Tapiriit Kanatami and Inuit Circumpolar Council Canada (2012).
13. For more information, please see Northern Food Retail Data Collection & Analysis by Enrg Research Group.
14. See Nutrition North Canada (2015); and Ottawa Public Health (2015).
15. See Duhaime and Caron (2012).
16. See Nutrition North Canada for more information on the program.
17. See the *Nunavut Food Security Strategy and Action Plan 2014-16* and *Summary: NWT Anti-Poverty Strategic Framework* for more information on these programs.
18. Country food refers to food eaten by Inuit for thousands of years. It includes seal, caribou, whale, ducks, fish and berries, among others. See Tait (2008).
19. See Lambden et al. (2006); and Ledrou and Gervais (2005).
20. In contrast, another study based on data from the 2007 to 2010 Canadian Community Health Survey (CCHS) did not find a significant difference between the food insecurity experiences of Inuit men and women (Gionet and Roshanafshar, 2013). This particular study, however, had limited sample size for the Inuit population and did not cover some Inuit regions such as Nunavik and other remote communities.
21. See Guo et al. (2015); Che and Chen (2001).
22. See Roshanafshar and Hawkins (2015); and Tarasuk et al. (2014).
23. The "Living with relatives" category includes respondents who were adult children and lived with their parents, those who lived with other family members (e.g. sisters, brothers, grandparents) and a very small number of respondents who lived with non-relatives.
24. See Huet et al. (2012).
25. Although there are a number of ways to define crowding, for the purposes of this paper, crowding refers to more than one person per room. Not counted as rooms are bathrooms, halls, vestibules, and rooms used solely for business purposes.
26. See Inuit Tapiriit Kanatami (2014).
27. See Raymond (2008).
28. See Mikkonen and Raphael (2010).
29. See Tarasuk et al. (2016); and Che and Chen (2001).
30. Income sources may also matter (see Tarasuk et al., 2016; Roshanafshar and Hawkins, 2015). In an alternative model that included the main source of income, Inuit adults whose main source of personal income was social assistance had a significantly higher probability of living in a food insecure household than those whose main source of income was wages, salaries or self-employment. Furthermore, those whose main source of income was a pension or Old Age Security (OAS) / Guaranteed Income Supplement (GIS) benefits had a significantly lower probability of experiencing food insecurity. This is consistent with previous research on the Canadian population, which has shown a significant reduction in food insecurity among seniors as they become eligible for benefits such as OAS and GIS (McIntyre et al., 2016).
31. See Inuit Tapiriit Kanatami (2014); and Wallace (2014).
32. "Weaker family ties" includes responses of "moderate," "weak," "very weak," or "no family."
33. See Inuit Tapiriit Kanatami (2014).
34. There are no communities in Inuit Nunangat with a population greater than 30,000.
35. See Inuit Tapiriit Kanatami (2014).
36. See Council of Canadian Academies (2014); Lambden et al. (2006); and Che and Chen (2001).
37. See Willows et al. (2011).
38. The "good" category is combined with "fair" and "poor" responses in order to have a large enough sample for the analysis. This also serves to compare these individuals with those who self-reported their health in the most positive terms—"excellent" or "very good." The same categories are used for self-reported mental health.
39. See USDA (2012).
40. See Tait (2008).
41. See Findlay et al. (2013).

References

Anderson, Thomas. 2015. *The Social Determinants of Higher Mental Distress among Inuit*. Statistics Canada Catalogue no. 89-653-X. Ottawa.

Butler Walker, Jody, Norma Kassi and Claire Eamer. 2009. *Food Security in Times of Change: A Policy Brief on Food Security for Northern Canada*. Whitehorse, Yukon. Arctic Health Research Network – Yukon.

Che, Janet and Jiajian Chen. 2001. "Food insecurity in Canadian households." *Health Reports*. Vol. 12, no. 4. Statistics Canada Catalogue no. 82-003-X. p. 11-22.

Council of Canadian Academies. 2014. *Aboriginal Food Security in Northern Canada: An Assessment of the State of Knowledge*. Ottawa. Expert Panel on the State of Knowledge of Food Security in Northern Canada, Council of Canadian Academies.

Duhaime, Gérard and Andrée Caron. 2012. *Nunavik Comparative Price Index 2011*. Université Laval, Québec. Canada Research Chair on Comparative Aboriginal Condition.

Egeland, Grace M. 2011. "IPY Inuit Health Survey speaks to need to address inadequate housing, food insecurity, and nutrition transition." *International Journal of Circumpolar Health*. Special Editorial. Vol. 70, no. 5. p. 444-446.

Findlay, Leanne C., Kellie A. Langlois and Dafna E. Kohen. 2013. "Hunger among Inuit children in Canada." *International Journal of Circumpolar Health*. Vol. 72.

First Nations Information Governance Centre (FNIGC). 2012. *First Nations Regional Health Survey (RHS) 2008/10: National Report on Adults, Youth and Children Living in First Nations Communities*. Ottawa. FNIGC.

Gionet, Linda and Shirin Roshanafshar. 2013. "Select health indicators of First Nations people living off reserve, Métis and Inuit." *Health at a Glance*. January. Statistics Canada Catalogue no. 82-624-X.

Guo, Yang, Lea Berrang-Ford, James Ford, Marie-Pierre Lardeau, Victoria Edge, Kaitlin Patterson, IHACC Research Team and Sherilee L. Harper. 2015. "Seasonal prevalence and determinants of food insecurity in Iqaluit, Nunavut." *International Journal of Circumpolar Health*. Vol. 74.

Huet, Catherine, Renata Rosol and Grace M. Egeland. 2012. "The prevalence of food insecurity is high and the diet quality poor in Inuit communities." *The Journal of Nutrition*. Vol. 142, no. 3. p. 541-547.

Inuit Tapiriit Kanatami. 2014. *Social Determinants of Inuit Health in Canada*. Ottawa. Inuit Tapiriit Kanatami.

Inuit Tapiriit Kanatami and Inuit Circumpolar Council, Canada. 2012. *Inuit and the Right to Food: Submission to the United Nations Special Rapporteur on the Right to Food for the Official Country Mission to Canada*. Ottawa. Inuit Tapiriit Kanatami and Inuit Circumpolar Council, Canada.

Lambden, Jill, Olivier Receveur, Joan Marshall and Harriet V. Kuhnlein. 2006. "Traditional and market food access in Arctic Canada is affected by economic factors." *International Journal of Circumpolar Health*. Vol. 65, no. 4. p. 331-340.

Ledrou, Ingrid and Jean Gervais. 2005. "Food insecurity." *Health Reports*. Vol. 16, no. 3. Statistics Canada Catalogue no. 82-003-X. p. 47-51.

McIntyre, Lynn, Daniel J. Dutton, Cynthia Kwok and J.C. Herbert Emery. 2016. "Reduction of food insecurity among low-income Canadian seniors as a likely impact of a guaranteed annual income." *Canadian Public Policy*. Vol. 42, no. 3. p. 274-286.

Mikkonen, Juha and Dennis Raphael. 2010. *Social Determinants of Health: The Canadian Facts*. Toronto. York University School of Health Policy and Management.

Nutrition North Canada. 2015. *Nutrition North Canada*. Ottawa. Indigenous and Northern Affairs Canada.

Ottawa Public Health. 2015. *The Price of Eating Well in Ottawa, 2015*. City of Ottawa.

Raymond, Mélanie. 2008. *High School Dropouts Returning to School*. Culture, Tourism and the Centre for Education Statistics Research Papers. Statistics Canada Catalogue no. 81-595-M – No. 055. Ottawa.

Roshanafshar, Shirin and Emma Hawkins. 2015. "Food insecurity in Canada." *Health at a Glance*. March. Statistics Canada Catalogue no. 82-624-X.

Rosol, Renata, Catherine Huet, Michele Wood, Crystal Lennie, Geraldine Osborne and Grace M. Egeland. 2011. "Prevalence of affirmative responses to questions of food insecurity: International Polar Year Inuit Health Survey, 2007-2008." *International Journal of Circumpolar Health*. Vol. 70, no. 5, p. 488-497.

Rotenberg, Cristine. 2016. *Aboriginal Peoples Survey, 2012: Social Determinants of Health for the Off-Reserve First Nations Population, 15 Years of Age and Older, 2012*. Statistics Canada Catalogue no. 89-653-X. Ottawa.

Tait, Heather. 2008. *Aboriginal Peoples Survey, 2006: Inuit Health and Social Conditions*. Statistics Canada Catalogue no. 89-637-X – No. 001. Ottawa.

Tarasuk, Valerie. 2009. "Health implications of food insecurity." *Social Determinants of Health: Canadian Perspectives*. Second Edition. Chapter 14. Dennis Raphael (ed.). Toronto. Canadian Scholars' Press Inc.

Tarasuk, Valerie, Andy Mitchell and Naomi Dachner. 2016. *Household Food Insecurity in Canada, 2014*. Toronto. Research to identify policy options to reduce food insecurity (PROOF).

Tarasuk, Valerie, Andy Mitchell and Naomi Dachner. 2014. *Household Food Insecurity in Canada, 2012*. Toronto. Research to identify policy options to reduce food insecurity (PROOF).

United Nations Food and Agriculture Organization. 1996. *Rome Declaration on World Food Security*. World Food Summit Plan of Action. Rome. November 13-17, 1996. World Food Summit Plan of Action 1.

United States Department of Agriculture. 2012. *U.S. Household Food Security Survey Module: Six-Item Short Form. Washington*. United States Department of Agriculture, Economic Research Service.

Wallace, Susan. 2014. *Inuit Health: Selected Findings from the 2012 Aboriginal Peoples Survey*. Statistics Canada Catalogue no. 89-653-X – No. 003. Ottawa.

Willows, Noreen, Paul Veugelers, Kim Raine and Stefan Kuhle. 2011. "Associations between household food insecurity and health outcomes in the Aboriginal population (excluding reserves)." *Health Reports*. Vol. 22, no. 2. Statistics Canada Catalogue no. 82-003-X.